

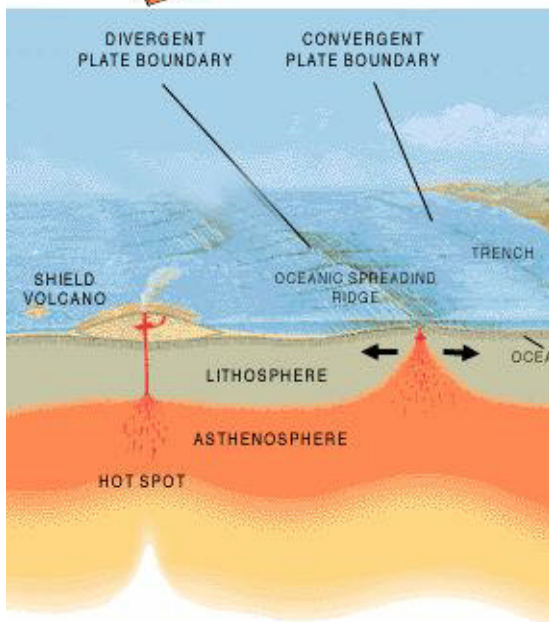
Shakin' it up!

objective: 3240-0501

EARTH IN MOTION

You and I live on the earth's **lithosphere**. The lithosphere consists of two parts, a thin outside layer of solid rock called the crust and the rigid upper part of the mantle. It seems so solid that you would think the earth is solid all the way through. However, we are actually "floating" on thick, gooey, molten rock called the **asthenosphere**. The lithosphere isn't just one continuous covering. It is divided into sections called **plates**. These plates move around on top of the asthenosphere which is about the consistency of a corn starch and water mixture (obleck).

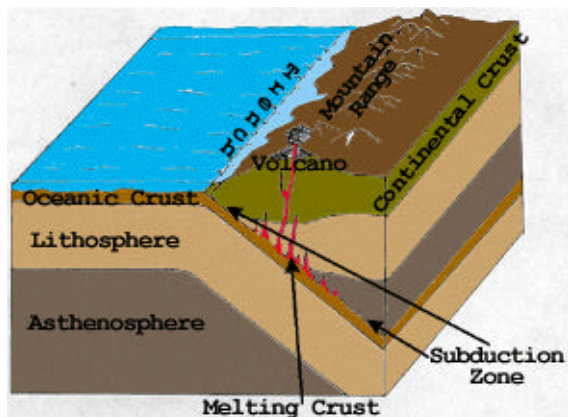
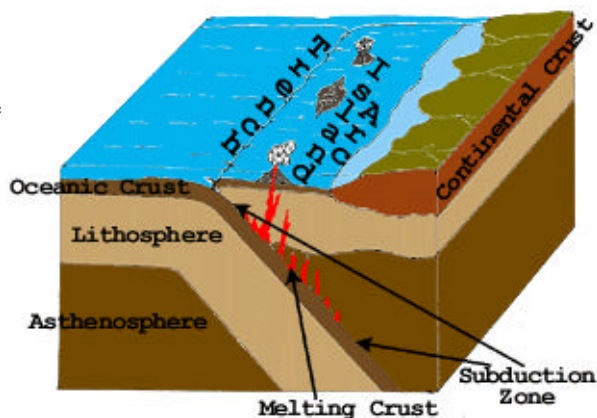
What happens when these plates move? Three things can happen. They can collide, move apart, or slide past each other.



The boundary where two plates move apart is called a **divergent boundary**. The illustration is courtesy of United States Geological Survey (USGS).

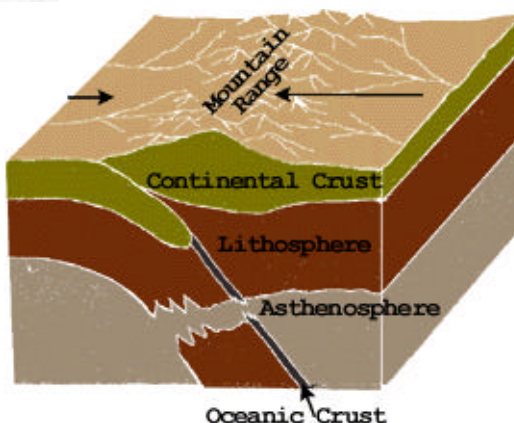
As the plates at the boundary move apart, magma (molten rock) oozes up and forms new crust. If this oozing magma is continually forming new crust, then why doesn't the crust get bigger and bigger? As new crust is added at divergent boundaries, it is also recycled at convergent boundaries.

Convergent boundaries are boundaries where the plates collide. As they crash into each other, one plate almost always slides under the other plate. This is called subduction zone, which means "to be led down." Where subduction occurs old crusts is moved down into the mantle where it melts. The magma is less dense which rises to the surface forming volcanoes.



If you were to plot volcanoes on a map, you would see a pattern. Many of the world's volcanoes are located in a region called the Pacific Ring of Fire where the Pacific plate collides with other plates. How do you think it got its name?

Continental to continental convergence is the collision between two continental crustal plates. At this type boundary mountains form buckeling, cracking, folding and up thrusting until the compressional force stops. This process is often refered to as an ogogenesis. The Himalaya mountains are an example of a range that is still building.



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